Advanced Computers and Music - MUS420  
Wed. 4:30-7:10 - Music B40, Spring 2019  
Dr. Welstead, MUS 171, jonw@uwm.edu

Texts and supplemental readings referenced in this course:  
ALL materials will be hosted on the Advanced Computers & Music D2L website.

Bible Reference Source:  
The Computer Music Tutorial, Curtis Roads

Prerequisites: Music 328, or consent of instr.
Class Time Commitment: 3hrs/wk x 15 = 45 hours; 6-10hrs/wk x 15 = 90-145 hours. Greater deal of your time will be in preparation, synthesis, programming of audio, compositional, acousmatic strategies, and sonic distribution.

In acousmatic, music listeners are challenged to distinguish sounds not based on their source, but by their sonic quality. As Pierre Schaeffer writes in his Treatise on Musical Objects "The concealment of the cause does not result from a technical imperfection, nor is it an occasional process of variation: it becomes a precondition, a deliberate placing-in-condition of the subject. It is toward it, then, that the question turns around; "what am I hearing?... What exactly are you hearing" -in the sense that one asks the subject to describe not the external references of the sound it perceives but the perception itself."

Course overview: This course is lecture-discussion based with concurrent laboratory exercises. Most all work must be done in the B40 Studio. Audio source development may be off-site. However, successful completion of this course will require application of and origination of multi-channel distribution on site. The focus of the course is to research the theory of spatialization in electronic music and develop the skills to incorporate spatialization techniques into new compositions. To that end, materials covered include acoustics, spatial perception, multi-channel speaker configurations, digital mixing, audio capture techniques, synthesis, editing, formats, interface and control; signal processing, monitoring & surround mixing, authoring, multi-channel formats, commercial surround formats and Ambisonic surround tools and theory. As always, the task is to develop self-sufficient skills in electronic composition, encourage creativity, and experimentation.

Materials and studio access: Media for developing projects: use (purchase) Flash drives, FireWire drives, USB hard drive unit. Backing up data is your responsibility. Access to the studio for projects and experimentation will be discussed as the course develops. Take care of this room - clean it up when you are done. Please offer this space the respect that it deserves or you might lose access privileges.

Further reading sources to draw upon:  
David Cope, “New Directions in Music” pgs. 131–151

Course goals: Students are expected to show proficiency in the understanding and application of:

1. Acoustic principles of sound localization
2. Surround diffusion techniques, intents, and theories
3. Studio signal routing and mixing in surround environments
4. Software environments for electronic sound production
5. Creative approaches to composing 'sound art' pieces in surround environments
6. Surround 5.1, 7.1, 10.2, Mixing theory and application

Software overview: Primary software environments are Digital Performer. Secondary software environments include Sound Hack, Audacity, Mach 5, Ambisonic B2X plug-in suite, Native Instruments plug-in suite, SFX Machine Pro, Plogue Bidule and others. Students are encouraged to begin gathering their source material early. Field recording equipment is available, and resources such as the Freesound Project [Freesound.org] are available online.

Attendance: Your attendance and participation IS required and factored into your grade. An attendance check-in sheet will be provided. It is your responsibility to record attendance for each class. Unexcused absences will affect your final grade. Missing 2 or more unexcused meetings will drop your grade, one (1) letter name, more than 4, failure. Additional unexcused absences will affect your grade accordingly.
Projects and exams: A great deal of technical material is covered in this course.

- 2 exams = 60%
- 2 directed composition projects = 40%
- All work (exams & projects) will be graded equally

A completed project of yours will be presented at the SALON 46, May 16, 2019, and will be considered partial fulfillment of the course. In addition to work produced, students will be expected to engage with the selected readings and come to class ready to discuss them. Your in-class participation will be factored into your grade. Required events: ElectroAcoustic Music Concerts, Sensoria Concerts, and MCC Student Concerts. Studio software, hardware, scheduling problems, recording hardware checkout: Schlei kdschlei@uwm.edu


First Meeting: Opening articles to read.
BarzunINTROREMARKS
Phillips Pavilion-Poème Electronic
A Comparison, Luigi Russolo’s The Art of Noise

Week 2: Continue week 1 + 2
griffiths-guide-to-electronic-music
Manning Conclusion
HowMusicMoves-Zohar.Edit

Week 3 - 6: Continue week 2 + 3
Spatialization Terms
Investigative Studies on Sound Diffusion
Panning – Linear – Constant Power
Ivy-localization
Austin-AudioTrajectory
Austin-8 CHANNEL PLACEMENTS
Koonce-Out_of_Breath_Speakers
Consoles
Best Methods to Bounce
Bussing and Bouncing

PROJECT I – Details to be announced

Week 7: Continue week 3 + 4 + 5 + 6
EXAM 1 – Delivered in D2L

Week 8: Continue week 6 + 7 +8
Acousmatic Defined
harrison-sound-space-sculpture
SurroundSystemLayouts
Working in Surround
Mixing in Surround

SPRING BREAK

Week 10: Continue week 7 + 8
Nano, Mack V, Kontak
NANOsamp-Mach V Quick Reference
MachV.INFO
Kontakt

PROJECT II – Details to be announced

Week 11-14: Continue week 8 + 10
MicPolarPatterns
malham-Ambiosonics
ambisonics-the-surround-alt
Ambisonic Studio Native B-Format
Ambisonic StudioB2X Plug-in Suite
B2B-Ambisonic
Ambisonic B Format, Solo2B, 2D Multi
Solo2B-B2D-WelDone

Beyond As Possible
Bidule-Connections
Bidule_v0.93 manual

FINAL EXAM – Final Class - Delivered in D2L

A completed project of yours will be presented at the SALON 46, May 16, 2019, and will be considered partial fulfillment of your Final Grade in the course.